SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, JANUARY 25, 1901.

CONTENTS:

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

*THE ORIGIN, SCOPE AND SIGNIFICANCE OF BACTERIOLOGY.**

BACTERIOLOGY is a child of the 19th century. It is the offspring of chemistry and biology, enriched by physics with the gift of the achromatic microscope.

By the end of the first quarter of the century, natural philosophy, natural history and chemistry had almost wholly displaced the magic and alchemy of the Middle Ages and the Renaissance. Natural law was the explanation indicated by natural knowledge for natural phenomena, and in most cases a natural explanation of these phenomena was either discoverable or conceivable. The Copernican theory, as developed by Galileo, Kepler, Newton and their successors, accounted satisfactorily for the obvious structure and operation of the solar system. The researches of Vesalius and Harvey, and their successors, had made comprehensible the anatomy and physiology of the animal body. The earth, in response to the inquiries of Hutton and Lyell, was yielding up the record of its slow but sublime history, its very rocks bearing eloquent testimony to their natural origin. The lightning of heaven, the thunderbolt of Zeus, interrogated by our own Franklin, had confessed its affinity

* Address delivered by the president before the Society of American Bacteriologists, Baltimore, December 27, 1900.

100° for the two points was Celsius, but in his instrument 0° represented the boiling point of water. Finally the change to the modern centigrade scale was made independently by Christin of Lyons and Strömer of Upsala, in 1743. With this date, Dr. Bolton's story of the evolution of the thermometer ends.

At the close of the book is given a table of the relative values of thirty-five different scales which have been used at various times; a chronological epitome; a list of authorities, and an index to the book.

J. L. H.

BOOKS RECEIVED.

A Treatise on Elementary Dynamics. H. A. ROBERTS. New York and London, The Macmillan Company. 1900. Pp. xi + 258. $1.10.

An Introduction to Modern Scientific Chemistry. LASSAR-COHN. Translated by M. M. PATTISON MUIR. New York, D. Van Nostrand Company. 1901. Pp. viii + 348. $2.00.

The Foundations of Botany. JOSEPH Y. BERGEN. Boston, Ginn & Company. 1901. Pp. x + 412; v + 257.

SCIENTIFIC JOURNALS AND ARTICLES.

IN the November–December number of the *Journal of Geology* James Perrin Smith discusses the 'Principles of Paleontologic Correlation.' He lays great stress on interregional zones and concludes that correlations upon homotaxis and synchronism should not be very different. Under 'Contributions from Walker Museum' E. C. Case describes 'The Vertebrates from the Permian Bone Bed of Vermillion County, Illinois.' A forty-page article by C. R. Van Hise on 'Some Principles controlling the Deposition of Ores' discusses the concentration of ores by underground water. He urges a new and natural classification of these ore deposits based upon their genesis, believing that such a division would also be of the greatest importance in the practical problems of engineers.

THE contents of the *Journal of the Boston Society of the Medical Sciences* for December 4, 1900, are as follows: 'Demonstration of a Photomicrograph of the Bacillus of Soft Chancre,' by F. B. Mallory; 'The Etiology of the Chancroid,' by Abner Post; 'A Simple Method of cultivating Anaërobic Bacteria,' by James H. Wright; 'Occurrence of the Typhoid Bacillus in Suppurative Processes and in the Fœtus,' by Oscar Richardson, being the annotated record of a number of cases, and 'Observations on Milk Coagulation and Digestion,' by Franklin W. White.

The Plant World for December, 1900, opens with a popular article on 'Irises,' by F. H. Knowlton, in which he notes that there are about 160 species, and W. J. Beal presents, with illustrations, 'A Few Observations on Root Hairs'; Arthur Hollick gives 'An Example of Deductive Reasoning,' this being that the bottom deposits in a small swamp on Staten Island should represent the Quaternary age, a deduction that was verified by the excavation of the swamp. Edward Hale Brush gives some notes on 'Horticulture and Landscape Gardening at the [coming] Pan-American Exposition.'

The Auk for January contains two biographical sketches, 'In Memoriam: Elliott Coues,' by D. G. Eliot, and 'In Memoriam: George Burritt Sennett,' by J. A. Allen, both accompanied by portraits. Outram Bangs gives some observations on 'Birds of San Miguel Island, Panama,' incidentally describing four new species. James H. Fleming presents 'A List of the Birds of the Districts of Parry Sound and Muskoka, Ontario,' comprising 196 species, and E. W. Nelson gives 'Descriptions of Five New Birds from Mexico.' 'The Sequence of Moults and Plumages of the Laridæ' (Gulls and Terns) is discussed by Jonathan Dwight, Jr., a subject that has received little attention, save at the hands of Brehm, in 1854. John H. Sage, the secretary, has an abstract of the 'Eighteenth Congress of the American Ornithologists' Union.' The 'Report of the Committee on the Protection of North American Birds for the Year 1900,' by Witmer Stone, shows that while much has been accomplished, a great deal remains to be done, and that decided help may be hoped for from the recent 'Lacey Bill.' William Dutcher gives the 'Results of Special Protection to Gulls and Terns obtained Through the Thayer Fund,' the expenditure of $1,400 having resulted in the preservation of many birds.

Terrestrial Magnetism for September, which has just appeared, contains a portrait and biographical sketch of Professor Arthur Schuster. Among other articles in the number are 'The Present Status of our Knowledge of the Earth's Magnetism,' by A. Nippoldt; and 'Note sur une cause d'erreur dans la détermination de la déclinaison magnétique,' by H. Morize.

THE first number of the *Journal of Hygiene*, published by the Cambridge University Press and edited by George H. F. Nuttall, lecturer in bacteriology and preventive medicine in the University of Cambridge, late associate in hygiene in the Johns Hopkins University, Baltimore, is announced for immediate issue. The provisional table of contents is as follows:

'Introductory' by Sir John Simon, Professor William Osler and the Editor.

'Studies in Relation to Malaria.'

I. 'The Geographical Distribution of Anopheles in Relation to the Former Distribution of Ague in England,' by G. H. F. Nuttall, Louis Corbett and T. S. Pigg.

II. 'The Structure and Biology of Anopheles,' by G. H. F. Nuttall and Arthur E. Shipley.

'Pathogenic Microbes in Milk,' by E. Klein.

'Industrial Lead Poisoning,' by T. M. Legge.

'A Rapid Method of determining Carbonic Acid in Air,' by John Haldane.

'The Cause of the Red Color in Salted Meat,' by John Haldane.

'Artificial Modifications of Toxines, with Special Reference to Immunity,' by James Ritchie.

La euille des jeunes naturalistes, edited by Mr. Adrien Dollfus, 35 Rue Pierre-Charron, Paris, having existed thirty years, has taken the opportunity of improving its appearance and intends to concentrate its efforts mainly on the natural history of western and central Europe with the adjacent regions around the Mediterranean. The library at the disposal of subscribers to *La Feuille* now contains about 42,000 memoirs and 300 scientific journals. The November, December and January numbers, which are those that have as yet appeared of this new series, amply fulfill the promise made. The most notable article is 'Revision des espèces de Tritons du genre *Euproctus* Gené, suivi d'un aperçu des Urodèles de la région paléarctique du sud-ouest,' by Dr. W. Wottersdorff.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES.

SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY.

A REGULAR meeting of the Section was held at 12 West 31st St., New York, on the evening of January 7, 1901. Professor Harold Jacoby, of Columbia University, gave an account of a 'New Telescope for Photographing the Pole of the Heavens.' He announced that this plan of photographing the close polar stars had made material progress. A special instrument has been constructed and mounted at the Observatory at Helsingfors, Finland. Photographs of the actual instrument in position for use were exhibited. It is planned to make photographs with this instrument in which the close polar stars will trace out 'trails' on the plate corresponding to their diurnal motion. The effects of refraction, etc., having been eliminated by computation, it is possible to obtain from such photographs the exact position of the celestial pole among the stars and on the date of observation. The intercomparison of results taken on dates six months apart should furnish a new determination of the constant of aberration, and photographs taken annually throughout a series of years should determine the constant of nutation and ultimately perhaps even that of precession.

The actual observing with the instrument will commence in the spring, as soon as the Helsingfors astronomers have finished with the observations of Eros now in progress, and the plates will be sent to Columbia University, New York, for measurements and reductions. An outline of the method to be used, together with a preliminary trial of the same, has already been published by Professor Jacoby, under the title 'Photographic Researches near the Pole of the Heavens,' *Bulletin of the Imperial Academy of Sciences of St. Petersburg*, 5th Series, Vol. 9, p. 41, June, 1898.

Mr. George B. Pegram, of Columbia University, read a paper on the 'Reflection of Light from White Surfaces.' This was an experimental study of some white surfaces with regard to the relation between the intensity of the reflected ray and the angles of incidence